

ABSTRACT

A method for manufacturing low cost electroluminescent (EL) illuminated membrane switches is disclosed. The method includes the first step of die cutting, embossing or chemically etching the metal foil surface of a metal foil bonded, light transmitting flexible electrical insulation to simultaneously form one or more front capacitive electrodes, membrane switch contacts and electrical shunt, electrical distribution means and electrical terminations that together comprise a flexible printed circuit panel. This continuous flexible printed circuit substrate is then coupled to a precisely positioned indexing system. Next, the front metal foil capacitive electrodes are coated with a light transmissive electrically conductive layer. Then, a layer of electroluminescent phosphor is applied to the electrically conductive layer, a layer of capacitive dielectric is applied insulating the phosphor layer, a rear capacitive electrode is then applied over the capacitive dielectric layer, thus forming an electroluminescent lamp portion. Next, a transparent dielectric coating is applied to the entire surface of the lamp and substrate with open portions exposing electrical terminations, switch contacts and shunt. A spacer is applied to surround the switch shunt, providing an isolation barrier. An intermediary material is applied to the surface of the isolated rear EL electrode thus forming a switch actuator. Finally, the illuminated switch pattern is die-cut from the substrate material, and is then folded into three layers forming the final illuminated membrane switch.